

# Björn Peter Schenke

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## CONTACT INFORMATION

26 Landing Lane  
Port Jefferson, NY 11777, USA

phone: +1 631 344 5805  
e-mail: bschenke@bnl.gov  
<http://quark.phy.bnl.gov/~bschenke>

## RESEARCH INTERESTS

### High energy nuclear theory

- Heavy-ion collisions, quark-gluon plasma
- Finite temperature/density quantum field theory
- Classical Yang-Mills and Wong-Yang-Mills theory
- Nuclei at high energy: Small-x physics and saturation
- Monte-Carlo simulations of heavy-ion collisions
- Relativistic hydrodynamic simulations of heavy-ion collisions
- Non-equilibrium field theory
- Transport theory, non-linear dynamics, plasma instabilities

## EDUCATION

### Goethe University, Frankfurt am Main, Germany

*Dr. phil. nat. (summa cum laude)* (Ph.D.)

**July 2008**

- Graduation date: July 3rd 2008
- Advisor: Professor Dr. Carsten Greiner
- Thesis: “Collective Phenomena in the Non-Equilibrium Quark-Gluon Plasma”

### Goethe University, Frankfurt am Main, Germany

*Diplom (MSc) with honors*

**November 2004**

- Advisor: Professor Dr. Carsten Greiner
- Thesis: “Dilepton Production from Hot Hadronic Matter in Non-Equilibrium”

### University of Washington, Seattle, USA

*Graduate studies*

**September 2002 - July 2003**

- with the ISAP program (DAAD) of the University of Giessen

### Justus Liebig University, Giessen, Germany

*Vordiplom (BSc)*

**September 2001**

## AWARDS

### 2014 - Early Career Research Program Award 2014

awarded by the U.S. Department of Energy (DOE) Office of Science

### 2013 - IUPAP Young Scientist Prize for Nuclear Physics 2013

presented at INPC 2013, Florence, Italy

### 2012 - Nuclear Physics A: Young Scientist Award 2012

presented at Quark Matter 2012, Washington DC, USA

### 2012 - Gertrude and Maurice Goldhaber Distinguished Fellowship

April 2012 - September 2013, with funding from Battelle Memorial Institute und Stony Brook University, partners in Brookhaven Science Associates, Brookhaven National Laboratory, Upton, NY, USA

### 2009 - Gernot und Carin Frank Preis 2009

Award for the best PhD work in the Department of Physics,  
Goethe University, Frankfurt am Main

awarded by the “Frankfurter Förderverein für physikalische Grundlagenforschung”  
and the Department of Physics, Goethe University, Frankfurt am Main.

**2008 - Richard H. Tomlinson Postdoctoral Fellowship 2008-2010**

McGill University, Montreal, Canada

**2002 - DAAD Fellowship**

ISAP visiting graduate program at the University of Washington, Seattle, USA  
(September 2002 - May 2003)

PROFESSIONAL  
EXPERIENCE

**Brookhaven National Laboratory, Upton, NY, USA**

*Associate Physicist* **July 2014 – present**

*Assistant Physicist* **October 2013 – June 2014**

*Goldhaber Distinguished Fellow* **April 2012 – September 2013**

*Research Associate* **December 2010 – March 2012**

Research in high-energy nuclear theory. See list of publications.

Chair of the weekly Nuclear Theory and RIKEN seminars.

**McGill University, Montreal, Canada**

*Postdoctoral Fellow* **September 2008 – November 2010**

Research in high-energy nuclear theory, focusing on jet physics, Monte-Carlo simulations and relativistic viscous hydrodynamics. See list of publications.

Supervision of master's and graduate students working on jet physics, electromagnetic probes of heavy-ion collisions, and hydrodynamic simulations.

Organization of seminars and journal clubs.

**Goethe University, Frankfurt am Main, Germany**

*Research Associate and Teaching Assistant* **November 2004 – August 2008**

Teaching assistant for undergraduate and graduate courses including classical mechanics, quantum mechanics, statistical mechanics, cosmology, general relativity, many-body theory; co-supervision of diploma students working in non-equilibrium quantum field theory and non-Abelian plasma simulations.

**Goethe University, Frankfurt am Main, Germany**

*Teaching Assistant for undergraduate courses* **October 2003 – November 2004**

**Justus Liebig University, Giessen, Germany**

*Teaching Assistant for undergraduate courses* **October 2001 – July 2002**

*Physics lab for biology students*

TEACHING  
EXPERIENCE

Apart from my work as a teaching assistant in a broad spectrum of courses mentioned above, I have experience in co-supervising and working with students. Students I have worked with include

- *Maxime Dion*, master's student, McGill University, left field
- *Fritz Kretzschmar*, master's student, Frankfurt University
- *Frank Michler*, master's and graduate student, Frankfurt University, left field
- *Jean-François Paquet*, master's student, McGill University, now Postdoc at Stony Brook University
- *Prithwish Tribedy*, graduate student at VECC, Kolkata, India, now Postdoc at Brookhaven National Lab

- *Gojko Vujanovic*, graduate student, McGill University, now Postdoc at The Ohio State University

Postdocs supervised:

- *Gabriel Denicol*, now professor at Universidade Federal Fluminense, Brazil
- *Heikki Mäntysaari*
- *Prithwish Tribedy*

#### Invited Lectures:

- June 16 2011, “Jet Monte-Carlo simulations”, Lecture at the JET summer school 2011, Duke University, USA
- October 16-21 2011, “Hydrodynamics and Flow”, Lecture at the 2011 H-QM Fall Lecture Week, Helmholtz Research School for Quark Matter Studies, Zell, Germany
- August 12 2012, Invited lecture at the Quark-Matter 2012 International Conference - Student Day, Washington D.C., USA
- August 20-24 2012, Invited lectures at the 22. Jyväskylä Summer School, Jyväskylä, Finland
- June 10-14 2013, Two invited lectures at the 2013 JET Summer School, The Ohio State University, Columbus, OH, USA
- September 27 2015, Theory of heavy ion collisions, Invited lecture at the Quark Matter 2015 Student Day, Kobe, Japan
- January 11-22 2016, Relativistic Hydrodynamics, Invited lecture at the 27th Chris Engelbrecht Summer School, Tshipise, Vhembe District, Limpopo, South Africa

PROFESSIONAL  
SERVICES

#### Referee for

- the American Physical Society’s journal *Physical Review Letters*
- the American Physical Society’s journal *Physical Review C*
- the American Physical Society’s journal *Physical Review D*
- Elsevier’s journal *Physics Letters B*
- Elsevier’s journal *Nuclear Physics A*
- Elsevier’s journal *Computer Physics Communications*
- Elsevier’s journal *Annals of Physics*
- SISSA’s journal *JHEP*
- World Scientific’s journal *Modern Physics Letters A*
- IOPScience’s *Journal of Physics*
- Hindawi’s journal *Advances in High Energy Physics*
- MDPI’s journal *Universe*

**Convener** of the BEST Topical Collaboration Initial State Working Group, 2016-  
**Member** of the RHIC and AGS Users’ Executive Committee (UEC), June 2016-  
**Member** of the Hot QCD subcommittee of the Exascale Requirements Review for Nuclear Physics, June 2016

**Co-Organizer** of the “2nd International Workshop on Initial State Fluctuations and Final State Correlations in Heavy-Ion Collisions”, August 8-11, 2013, Chengdu, China

**Member** of the White Paper Committee “QCD Matter. A Community White Paper on the Future of Relativistic Heavy-Ion Physics in the US”, 2012  
**Convener** of the “Soft processes and hydrodynamics” session at the International Symposium on Multiparticle Dynamics, ISMD 2012  
 Jan Kochanowski University, Kielce, Poland, 17-21 Sept. 2012  
**Convener** of the Monte-Carlo working group of the JET collaboration, 2010-2012  
 (DOE funded topical collaboration on Jet and Electromagnetic Tomography)  
**Local organizing committee** of “Strong and Electroweak Matter 2010”  
 McGill University, Montreal, Canada

LANGUAGES            German (native)  
                               English (fluent)  
                               French (basic knowledge)  
                               Japanese (basic knowledge)

PUBLICATIONS        *Recent Publications - submitted to journals*

1. B. Schenke, S. Schlichting  
*3-D Glasma initial state for relativistic heavy ion collisions*  
 e-Print: arXiv:1605.07158, submitted to PRC
2. S. Mrowczynski, B. Schenke, M. Strickland  
*Color Instabilities in the Quark-Gluon Plasma*  
 e-Print: arXiv:1603.08946, submitted to Physics Reports

*Refereed Publications*

1. H. Mäntysaari, B. Schenke  
*Evidence of strong proton shape fluctuations from incoherent diffraction*  
 accepted by Phys. Rev. Lett. [arXiv:1603.04349]
2. F. Gelis, B. Schenke  
*Initial State Quantum Fluctuations in the Little Bang*  
 accepted by Annual Review of Nuclear and Particle Science [arXiv:1604.00335]
3. P. Tribedy, B. Schenke, R. Venugopalan  
*Fluctuating Glasma initial condition for heavy ion collisions*  
 DAE Symp. Nucl. Phys. **57** (2012) 770-771
4. G. Denicol, A. Monnai, B. Schenke  
*Moving forward to constrain the shear viscosity of QCD matter*  
 Phys. Rev. Lett. **116** (2016) no.21, 212301 [arXiv:1512.01538]
5. G. Vujanovic, C. Shen, G.S. Denicol, B. Schenke, S. Jeon, C. Gale  
*Probing the dissipative properties of a strongly interacting medium with dileptons*  
 Nuclear and Particle Physics Proceedings **276-278** (2016) 113-114 [arXiv:1511.04625]
6. N.-B. Chang et al.  
*Physics Perspectives of Heavy-Ion Collisions at Very High Energy*  
 Sci. China Phys. Mech. Astron. **59** (2016) no.2, 621001 [arXiv:1510.05754]
7. B. Schenke  
*Theory @ Hard Probes 2015*  
 Nuclear and Particle Physics Proceedings **276-278** (2016) 103-110 [ arXiv:1510.04133]
8. K. Dusling, W. Li, B. Schenke  
*Novel collective phenomena in high-energy proton-proton and proton-nucleus collisions*  
 Int. J. Mod. Phys. **E25** (2016) no.01, 1630002 [arXiv:1509.07939]

9. J.-F. Paquet, C. Shen, G.S. Denicol, M. Luzum, B. Schenke, S. Jeon, C. Gale  
*Production of photons in relativistic heavy-ion collisions*  
Phys. Rev. **C93** (2016) no.4, 044906 [arXiv:1509.06738]
10. A. Monnai, B. Schenke  
*Pseudorapidity correlations in heavy ion collisions from viscous fluid dynamics*  
Phys. Lett. **B752** (2016) 317-321 [arXiv:1509.04103]
11. T. Lappi, B. Schenke, S. Schlichting, R. Venugopalan  
*Tracing the origin of azimuthal gluon correlations in the color glass condensate*  
JHEP 1601 (2016) 061 [arXiv:1509.03499]
12. W. van der Schee, B. Schenke  
*Rapidity dependence in holographic heavy ion collisions*  
Phys. Rev. **C92** (2015) no.6, 064907 [arXiv:1507.08195]
13. B. Schenke  
*Initial state fluctuations and final state collectivity in high energy nuclear collisions: Status and Outlook*  
J. Phys. Conf. Ser. **612** (2015) no.1, 012059
14. L. McLerran, B. Schenke  
*A Tale of Tails: Photon Rates and Flow in Ultra-Relativistic Heavy Ion Collisions*  
Nucl. Phys. **A946** (2016) 158-170 [arXiv:1504.07223]
15. S. Ryu, J.-F. Paquet, C. Shen, G.S. Denicol, B. Schenke, S. Jeon, C. Gale  
*Importance of the Bulk Viscosity of QCD in Ultrarelativistic Heavy-Ion Collisions*  
Phys. Rev. Lett. **115** (2015) no.13, 132301 [arXiv:1502.01675]
16. B. Schenke, S. Schlichting, R. Venugopalan  
*Azimuthal anisotropies in p+Pb collisions from classical Yang-Mills dynamics*  
Phys. Lett. **B747** (2015) 76-82 [arXiv:1502.01331]
17. J. Berges, B. Schenke, S. Schlichting, R. Venugopalan  
*Turbulent thermalization process in high-energy heavy-ion collisions*  
Nucl. Phys. **A931** (2014) 348-353 [arXiv:1409.1638]
18. B. Schenke, P. Tribedy, R. Venugopalan  
*Initial state geometry and fluctuations in deformed and asymmetric nuclear collisions in the IP-Glasma framework*  
Nucl. Phys. **A931** (2014) 288-292
19. G. Vujanovic, J.F. Paquet, G.S. Denicol, M. Luzum, B. Schenke, S. Jeon, C. Gale  
*Probing the non-equilibrium dynamics of hot and dense QCD with dileptons*  
Nucl. Phys. **A931** (2014) 701-705 [arXiv:1408.1098]
20. J.-B. Rose, J.-F. Paquet, G.S. Denicol, M. Luzum, B. Schenke, S. Jeon, C. Gale  
*Extracting the bulk viscosity of the quark-gluon plasma*  
Nucl. Phys. **A931** (2014) 926-930 [arXiv:1408.0024]
21. C. Young, J.I. Kapusta, C. Gale, S. Jeon, B. Schenke  
*Numerical Simulation of Thermal Noise in Heavy Ion Collisions*  
J. Phys. Conf. Ser. **535** (2014) 012034
22. C. Gale, S. Jeon, B. Schenke, P. Tribedy, R. Venugopalan  
*Particle production and final state effects in nuclear collisions*  
J. Phys. Conf. Ser. **535** (2014) 012026
23. B. Schenke, P. Tribedy, R. Venugopalan  
*Glasma fluctuations in heavy-ion collisions*  
AIP Conf. Proc. 1560 (2013) 650-654

24. S. Schlichting, B. Schenke  
*The shape of the proton at high energies* Phys. Lett. **B739** (2014) 313-319 [arXiv:1407.8458]
25. B. Schenke, R. Venugopalan  
*Collective effects in light-heavy ion collisions*  
Nucl. Phys. **A931** (2014) 1039-1044 [arXiv:1407.7557]
26. C. Young, J.I. Kapusta, C. Gale, S. Jeon, B. Schenke  
*Thermally Fluctuating Second-Order Viscous Hydrodynamics and Heavy-Ion Collisions*  
Phys. Rev. **C91** (2015) no.4, 044901 [arXiv:1407.1077]
27. B. Schenke, R. Venugopalan  
*Eccentric protons? Sensitivity of flow to system size and shape in p+p, p+Pb and Pb+Pb collisions*  
Phys. Rev. Lett. **113** (2014) 102301 [arXiv:1405.3605]
28. G. Vujanovic, J.-F. Paquet, G.S. Denicol, M. Luzum, B. Schenke, S. Jeon, C. Gale  
*Probing the early-time dynamics of relativistic heavy-ion collisions with electromagnetic radiation*  
Nucl. Phys. **A932** (2014) 230-234 [arXiv:1404.3714]
29. K.M. Burke, A. Buzzatti, N. Chang, C. Gale, M. Gyulassy, U. Heinz, S. Jeon, A. Majumder, B. Müller, G.-Y. Qin, B. Schenke, C. Shen, X.-N. Wang, J. Xu, C. Young, H. Zhang  
*Extracting jet transport coefficient from jet quenching at RHIC and LHC*  
Phys. Rev. **C90** no.1 (2014) 014909 [arXiv:1312.5003]
30. L. McLerran, B. Schenke  
*The Glasma, Photons and the Implications of Anisotropy*  
Nucl. Phys. **A929** (2014) 71-82 [arXiv:1403.7462]
31. B. Schenke, P. Tribedy, R. Venugopalan  
*Initial state geometry and fluctuations in Au+Au, Cu+Au and U+U collisions at RHIC*  
Phys. Rev. **C89** (2014) no.6, 064908 [arXiv:1403.2232]
32. G. Vujanovic, C. Young, B. Schenke, R. Rapp, S. Jeon, C. Gale  
*Dilepton emission in high-energy heavy-ion collisions with viscous hydrodynamics*  
Phys. Rev. **C89** (2014) 034904 [arXiv:1312.0676]
33. B. Schenke, P. Tribedy, R. Venugopalan  
*Multiplicity distributions in p+p, p+A and A+A collisions from Yang-Mills dynamics*  
Phys. Rev. **C89** (2014) 024901 [arXiv:1311.3636]
34. L. McLerran, M. Praszalowicz, B. Schenke  
*Transverse Momentum of Protons, Pions and Kaons in High Multiplicity pp and pA Collisions: Evidence for the Color Glass Condensate?*  
Nucl. Phys. **A916** (2013) 210-218 [arXiv:1306.2350]
35. A. Bzdak, B. Schenke, P. Tribedy, R. Venugopalan  
*Initial state geometry and the role of hydrodynamics in proton-proton, proton-nucleus and deuteron-nucleus collisions*  
Phys. Rev. **C87** (2013) 064906 [arXiv:1304.3403]
36. C. Gale, S. Jeon, B. Schenke  
*Hydrodynamic Modeling of Heavy-Ion Collisions*  
Int. J. Mod. Phys. **A28** (2013) 1340011 [arXiv:1301.5893]

37. G. Vujanovic, C. Young, B. Schenke, S. Jeon, R. Rapp, C. Gale  
*Dilepton production in high energy heavy ion collisions with 3+1D relativistic viscous hydrodynamics*  
Nucl. Phys. **A904-905** (2013) 557c-560c [arXiv:1211.0022]
38. C. Gale, S. Jeon, B. Schenke, P. Tribedy, R. Venugopalan  
*Initial state fluctuations and higher harmonic flow in heavy-ion collisions*  
Nucl. Phys. **A904-905** (2013) 409c-412c [arXiv:1210.5144]
39. S. Ryu, S. Jeon, C. Gale, B. Schenke, C. Young  
*MUSIC with the UrQMD Afterburner*  
Nucl. Phys. **A904-905** (2013) 389c-392c [arXiv:1210.4588]
40. C. Gale, S. Jeon, B. Schenke, P. Tribedy, R. Venugopalan  
*Event-by-event anisotropic flow in heavy-ion collisions from combined Yang-Mills and viscous fluid dynamics*  
Phys. Rev. Lett. **110** (2013) 012302 [arXiv:1209.6330]
41. N. Armesto, B. Cole, C. Gale, W.A. Horowitz, P. Jacobs, S. Jeon, M. van Leeuwen, A. Majumder, B. Müller, G.-Y. Qin, C.A. Salgado, B. Schenke, M. Verweij, X.-N. Wang, U.A. Wiedemann  
*Comparison of Jet Quenching Formalisms for a Quark-Gluon Plasma 'Brick'*  
Phys. Rev. **C86** (2012) 064904 [arXiv:1106.1106]
42. B. Schenke, P. Tribedy, R. Venugopalan  
*Event-by-event gluon multiplicity, energy density, and eccentricities in ultrarelativistic heavy-ion collisions*  
Phys. Rev. **C86** (2012) 034908 [arXiv:1206.6805]
43. C. Young, B. Schenke, S. Jeon, C. Gale  
*MARTINI event generator for heavy quarks: Initialization, parton evolution, and hadronization*  
Phys. Rev. **C86** (2012) 034905 [arXiv:1111.0647]
44. B. Schenke, P. Tribedy, R. Venugopalan  
*Fluctuating Glasma initial conditions and flow in heavy ion collisions*  
Phys. Rev. Lett. **108** (2012) 252301 [arXiv:1202.6646]
45. B. Schenke, S. Jeon, C. Gale  
*Higher flow harmonics from (3+1)D event-by-event viscous hydrodynamics*  
Phys. Rev. **C85** (2012) 024901 [arXiv:1109.6289]
46. M. Dion, J.-F. Paquet, B. Schenke, C. Young, S. Jeon, C. Gale  
*Viscous photons in relativistic heavy ion collisions*  
Phys. Rev. **C84** (2011) 064901 [arXiv:1109.4405]
47. A. Dumitru, J. Jalilian-Marian, T. Lappi, B. Schenke, R. Venugopalan  
*Renormalization group evolution of multi-gluon correlators in high energy QCD*  
Phys. Lett. **B706** (2011) 219-224 [arXiv:1108.4764]
48. B. Schenke, S. Jeon, C. Gale  
Monte-Carlo Simulation of Hard Probes in Heavy-Ion Collisions  
Journal of Physics: Conference Series, Volume 312, Issue 1, 012003 (2011)
49. B. Schenke  
*Flow in heavy-ion collisions - Theory Perspective*  
J. Phys. **G38** (2011) 124009 [arXiv:1106.6012]
50. M. Dion, C. Gale, S. Jeon, J.-F. Paquet, B. Schenke, C. Young  
*Photons at RHIC: The Role of viscosity and of initial state fluctuations*  
J. Phys. **G38** (2011) 124138 [arXiv:1107.0889]

51. B. Schenke, S. Jeon, C. Gale  
*Elliptic and triangular flows in 3+1D viscous hydrodynamics with fluctuating initial conditions*  
J. Phys. **G38** (2011) 124169
52. B. Schenke, S. Jeon, C. Gale  
*Monte-Carlo simulation of heavy-ion collisions*  
Int. J. Mod. Phys. **E20** (2011) 1588-1593
53. B. Schenke, S. Jeon, C. Gale  
*Monte-Carlo simulation of heavy-ion collisions*  
Nucl. Phys. **A855** (2011) 303-306
54. C. Young, B. Schenke, S. Jeon, C. Gale  
*Dijet asymmetry at the energies available at the CERN Large Hadron Collider*  
Phys. Rev. **C84** (2011) 024907 [arXiv:1103.5769].
55. B. Schenke, S. Jeon, C. Gale  
*Anisotropic flow in  $\sqrt{s} = 2.76$  TeV Pb+Pb collisions at the LHC*  
Phys. Lett. **B702** (2011) 59-63 [arXiv:1102.0575].
56. B. Schenke, S. Jeon, C. Gale  
*Hydrodynamic evolution and jet energy loss in Cu+Cu collisions*  
Phys. Rev. **C83** (2011) 044907 [arXiv:1101.0425].
57. B. Schenke, S. Jeon, C. Gale  
*Elliptic and triangular flow in event-by-event D=3+1 viscous hydrodynamics*  
Phys. Rev. Lett. **106** (2011) 042301 [arXiv:1009.3244].
58. B. Schenke, S. Jeon, C. Gale  
*(3+1)D hydrodynamic simulation of relativistic heavy-ion collisions*  
Phys. Rev. **C82** (2010) 014903 [arXiv:1004.1408].
59. B. Schenke, C. Gale, S. Jeon  
*MARTINI: Monte Carlo simulation of jet evolution*  
Acta Physica Polonica B, Proceedings Supplement, Vol. 3, No. 3 (2010) page 765 [arXiv:0911.4470].
60. B. Schenke, C. Gale, S. Jeon  
*MARTINI: An event generator for relativistic heavy-ion collisions*  
Phys. Rev. **C80** (2009) 054913 [arXiv:0909.2037].
61. B. Schenke  
*Jet evolution in Yang-Mills-Wong simulations*  
Nucl.Phys.**A830** (2009) 689c [arXiv:0907.4111].
62. F. Michler, B. Schenke, C. Greiner  
*Memory effects in radiative jet energy loss*  
Phys. Rev. **D80** (2009) 045011 [arXiv:0905.2930].
63. B. Schenke, C. Gale, Q.-Y. Qin  
*Evolving distribution of hard partons traversing a hot strongly interacting plasma*  
Phys. Rev. **C79** (2009) 054908 [arXiv:0901.3498].
64. B. Schenke, A. Dumitru, Y. Nara, and M. Strickland, C. Greiner  
*Transverse momentum diffusion and jet energy loss in non-Abelian plasmas*  
Phys. Rev. **C79** (2009) 034903 [arXiv:0810.1314].
65. B. Schenke, A. Dumitru, Y. Nara, and M. Strickland,  
*QGP collective effects and jet transport*  
J. Phys. G: Nucl. Part. Phys. **35** 104109 [arXiv:0804.4557].
66. A. Dumitru, Y. Nara, B. Schenke, and M. Strickland,  
*Jet broadening in unstable non-Abelian plasmas*  
Phys. Rev. **C 78** (2008) 024909 [arXiv:0710.1223].

67. B. Schenke and M. Strickland,  
*Photon production from an anisotropic quark-gluon plasma*  
Phys. Rev. D **76** (2006) 025023 [arXiv:hep-ph/0611332].
68. B. Schenke and C. Greiner,  
*Dilepton yields from Brown-Rho scaled vector mesons including memory effects*  
Phys. Rev. Lett. **98** (2007) 022301 [arXiv:hep-ph/0608032].
69. B. Schenke and C. Greiner,  
*Non-equilibrium dilepton production in dropping mass scenarios*  
Nucl.Phys.A**785** (2007) 170c
70. B. Schenke and M. Strickland,  
*Fermionic collective modes of an anisotropic quark-gluon plasma*  
Phys. Rev. D **74** (2006) 065004 [arXiv:hep-ph/0606160].
71. B. Schenke and C. Greiner,  
*Non-equilibrium description of dilepton production in heavy-ion reactions*  
J. Phys. Conf. Ser. **35** (2006) 398
72. B. Schenke, M. Strickland, C. Greiner and M. H. Thoma,  
*Model of the effect of collisions on QCD plasma instabilities*  
Phys. Rev. D **73** (2006) 125004 [arXiv:hep-ph/0603029].
73. B. Schenke and C. Greiner,  
*Dilepton production from hot hadronic matter in non-equilibrium*  
Phys. Rev. C **73** (2006) 034909 [arXiv:hep-ph/0509026].
74. B. Schenke and C. Greiner,  
*Statistical description with anisotropic momentum distributions for hadron production in nucleus nucleus collisions*  
J. Phys. G **30** (2004) 597 [arXiv:nucl-th/0305008].

*Further publications (proceedings)*

1. G. Denicol, A. Monnai, S. Ryu, B. Schenke  
*New insights from 3D simulations of heavy ion collisions*  
Conference: C15-09-27, Quark Matter 2015 [arXiv:1512.08231]
2. G. Vujanovic, G.S. Denicol, C. Shen, M. Luzum, B. Schenke, S. Jeon, C. Gale  
*Dilepton emission in high-energy heavy-ion collisions with dissipative hydrodynamics*  
Conference: C15-05-19 [arXiv:1510.00441]
3. B. Schenke, P. Tribedy, R. Venugopalan  
*Gluon field fluctuations in nuclear collisions: Multiplicity and eccentricity distributions*  
Proceedings of IS2013 [arXiv:1312.5588]
4. C. Young, B. Schenke, S. Jeon, C. Gale  
*Realistic modelling of jets in heavy-ion collisions*  
Proceedings of Hard Probes 2012 [arXiv:1209.5679]
5. C. Young, S. Jeon, C. Gale, B. Schenke  
*Monte-Carlo simulation of jets in heavy-ion collisions*  
SLAC Electronic Proceedings [arXiv:1109.5992]
6. F. Michler, B. Schenke, C. Greiner  
*Finite lifetime effects on the photon production from a quark-gluon plasma*  
To appear in the proceedings of the 47th International Winter Meeting on Nuclear Physics, Bormio, Italy, Jan, 26-30 2009  
arXiv:0906.1734.

7. C. Greiner and B. Schenke,  
*Dileptons from vector mesons with dropping masses in a non-equilibrium quantum field theoretical framework*  
Appeared in the proceedings of the 22nd Winter Workshop on Nuclear Dynamics, La Jolla, California, Mar 11-19, 2006 [arXiv:hep-ph/0606028].
8. B. Schenke and C. Greiner,  
*Dilepton production from non-equilibrium hot hadronic matter*  
Appeared in the proceedings of the 43rd International Winter Meeting on Nuclear Physics, Bormio, Italy, 13-20 Mar 2005 [arXiv:hep-ph/0504278].

PRESENTATIONS

*Presentations at international conferences, workshops, colloquia, and seminars*

1. 05/11/2016  
*Hydro and Initial State Working Group Plan*  
BEST 2016 - Topical Workshop on the Beam Energy Scan  
Indiana University, Bloomington, IN, USA
2. 04/12/2016  
*3D modeling of heavy ion collisions*  
NSCL Theory Seminar  
Michigan State University, East Lansing, MI, USA
3. 03/25/2016  
*The Ridge*  
Rencontres de Moriond  
La Thuile, Italy
4. 02/22/2016  
*Can  $p+p$  and  $p+A$  collisions create a quark-gluon fluid?*  
Medium and High Energy Physics Seminar  
University of Illinois at Urbana-Champaign, IL, USA
5. 02/09/2016  
*Angular Asymmetries in High Multiplicity  $pp/pA$  Collisions*  
RBRC workshop: Emerging Spin and Transverse Momentum Effects in  $p+p$  and  $p+A$  Collisions  
Brookhaven National Laboratory, Upton, NY, USA
6. 01/22/2016  
*Moving forward to constrain the shear and bulk viscosity of QCD*  
RBRC workshop: Opportunities for Exploring Longitudinal Dynamics in Heavy Ion Collisions at RHIC Brookhaven National Laboratory, Upton, NY, USA
7. 11/03/2015  
*Extremely hot fundamental matter: How viscous was the early universe?*  
Physics Colloquium  
Colgate University, Hamilton, NY, USA
8. 10/29/2015  
*Moving forward to constrain the transport properties of QCD*  
RHIC AGS Users' Group Open Forum Meeting  
Santa Fe, NM, USA
9. 09/30/2015  
*Bulk evolution of heavy ion collisions in the beam energy scan*  
Quark Matter 2015  
Kobe, Japan
10. 09/02/2015 *Fluctuations and flow of the world's smallest and hottest fluid*  
EuNPC2015  
Groningen, The Netherlands

11. 07/03/2015  
*Theory Summary*  
 Hard Probes 2015  
 McGill University, Montreal, Canada
12. 06/10/2015  
*Building Blocks for Bulk Simulations of Heavy-Ion Collisions in the BES*  
 RHIC AGS Annual Users' Meeting 2015  
 Brookhaven National Laboratory, Upton, NY, USA
13. 06/10/2015  
*Hydrodynamics in Small Systems ( $p+A$ ,  $d+A$ ,  $He^3+A$ )*  
 RHIC AGS Annual Users' Meeting 2015  
 Brookhaven National Laboratory, Upton, NY, USA
14. 05/23/2015  
*Azimuthal anisotropies from dense initial gluon fields in  $p+A$  collisions*  
 CIPANP 2015  
 Vail, CO, USA
15. 03/05/2015  
*The smallest, hottest droplet of fluid ever made*  
 Physics Colloquium  
 Kent State University, Kent, OH, USA
16. 10/23/2014  
*Fluctuations, collectivity and correlations in high-energy nuclear collisions*  
 KMI Mini-Workshop  
 KMI, Nagoya University, Nagoya, Japan
17. 10/4/2014  
*Theory Overview: What we can learn from the MPC-EX*  
 PHENIX MPC-EX Meeting  
 Brookhaven National Laboratory, Upton, NY, USA
18. 09/13/2014  
*The standard model for QGP evolution: Theoretical status and future*  
 APS Division of Nuclear Physics: 2014 Long-Range Plan  
 Joint Town Meetings on QCD  
 Temple University, Philadelphia, PA, USA
19. 07/07/2014  
*Initial conditions - status and to do*  
 Toward Quantitative Conclusions from Heavy-Ion Collisions  
 Michigan State University, East Lansing, MI, USA
20. 06/17/2014  
*The photon anisotropy puzzle and collisions of deformed nuclei - effects of the glasma*  
 RHIC AGS Users' Meeting 2014  
 Brookhaven National Laboratory, Upton, NY, USA
21. 05/28/2014  
*Fluctuating gluon fields, flow and particle correlations in nuclear collisions*  
 Teilchentee, Ruprecht Karl University of Heidelberg  
 Heidelberg, Germany

22. 05/21/2014  
*Multi-Particle production and ridge structure in A+A, p+A, and p+p collisions*  
 Quark Matter 2014  
 Darmstadt, Germany
23. 05/05/2014  
*Extreme QCD: Classical fields, perfect fluids, and quantum entanglement*  
 TU Darmstadt  
 Darmstadt, Germany
24. 04/09/2014  
*Particle production and final state effects in nuclear collisions*  
 The 30th Winter Workshop on Nuclear Dynamics  
 Galveston, TX, USA
25. 04/04/2014  
*Geometry and fluctuations in large and small nuclear collision systems*  
 490th Brookhaven Lecture  
 Brookhaven National Laboratory, Upton, NY, USA
26. 12/18/2013  
*The Shape and Flow of Heavy Ion Collisions*  
 490th Brookhaven Lecture  
 Brookhaven National Laboratory, Upton, NY, USA
27. 10/22/2013  
*Multi-particle Correlations in Proton-lead Collisions from the Initial State, the Glasma, and the Almost Perfect Fluid*  
 LNS Seminar  
 MIT, Cambridge, MA, USA
28. 09/26/2013  
*Anisotropic particle production in nuclear collisions:  
 The role of the glasma and hydrodynamics*  
 Seminar, University of Santiago de Compostela  
 Santiago de Compostela, Galicia, Spain
29. 09/11/2013  
*The role of the glasma and hydrodynamics for azimuthal anisotropies  
 in nuclear collisions*  
 IS2013  
 Illa da Toxa, Galicia, Spain
30. 06/28/2013  
*Status of extraction of QGP transport parameters*  
 RHIC & AGS Users' Meeting 2013  
 Brookhaven National Laboratory, Upton, NY, USA
31. 06/25/2013  
*Eta dependence of spectra and  $v_n$  and the effect of viscosity at forward rapidities*  
 RHIC & AGS Users' Meeting 2013  
 Brookhaven National Laboratory, Upton, NY, USA

32. 06/05/2013  
*The shape and flow of heavy-ion collisions*  
INPC2013  
Florence, Italy
33. 04/26/2013  
*Fluctuating gluon fields and flow in high-energy nuclear collisions*  
Nuclear Theory Seminar  
Texas A&M University, College Station, TX, USA
34. 04/17/2013  
*Initial conditions in A+A, p+A, d+A and p+p collisions*  
Workshop on Jet Quenching at RHIC vs LHC  
in Light of Recent dAu and pPb Controls  
Brookhaven National Laboratory, NY, USA
35. 03/26/2013  
*Fluctuating glue and flow in heavy-ion collisions*  
Physics Colloquium  
Brookhaven National Laboratory, NY, USA
36. 03/21/2013 *Glasma fluctuations and harmonic flow in heavy-ion collisions*  
Quarks, Gluons, and Hadronic Matter under Extreme Conditions II  
St. Goar, Germany
37. 03/05/2013  
*Collective flow in a hot, dense, and strongly interacting medium*  
DPG Spring Meeting 2013  
Dresden, Germany
38. 02/19/2013  
*Glasma fluctuations and harmonic flow in heavy-ion collisions*  
Heavy Ion Tea (HIT) Seminar  
Lawrence Berkeley National Laboratory, Berkeley, CA, USA
39. 01/29/2013  
*Glasma fluctuations and hydrodynamic event-by-event flow at RHIC and LHC*  
Nuclear Physics Seminar  
Brookhaven National Laboratory, Upton, NY, USA
40. 12/07/2012  
*Initial state and hydrodynamic evolution in heavy-ion collisions*  
Thermal Radiation Workshop 2012  
Brookhaven National Laboratory, Upton, NY, USA
41. 11/15/2012  
*Understanding Quantum-Chromo-Dynamics with Heavy-Ion Collisions*  
EMMI Seminar  
TU Darmstadt, Germany
42. 11/09/2012  
*Combined Yang-Mills and relativistic viscous fluid-dynamic simulation of event-by-event flow at RHIC and LHC*  
Nuclear Physics Colloquium  
Goethe University, Frankfurt, Germany
43. 10/27/2012  
*Initial State and Hydrodynamic Models for Particle Production from the Little Bangs*  
2012 Fall Meeting of the Division of Nuclear Physics (DNP2012)  
Newport Beach, CA, USA

44. 08/15/2012  
*Initial state fluctuations and higher harmonic flow in heavy-ion collisions*  
Quark Matter 2012  
Washington DC, USA
45. 07/02/2012  
*Fluctuating glasma initial conditions, multiplicities and flow in heavy-ion collisions*  
Workshop on Initial State Fluctuations and Final State Correlations in Heavy-Ion Collisions  
ECT\*, Trento, Italy
46. 06/12/2012  
*Flowing quantum fluctuations*  
Symposium on contemporary subatomic physics  
McGill University, Montreal, Canada
47. 06/01/2012  
*Fluctuating Glasma initial conditions and flow in heavy-ion collisions*  
CIPANP 2012  
St. Petersburg, FL, USA
48. 05/01/2012  
*Fluctuating Glasma initial conditions for heavy-ion collisions*  
Seminar in Hadronic Physics  
McGill University, Montreal, Canada
49. 03/31/2012  
*Interpreting jet results from RHIC and LHC*  
APS April Meeting  
Atlanta, GA, USA
50. 03/14/2012  
*Towards comprehensive simulations of heavy-ion collisions*  
Physics Colloquium  
University of Illinois at Chicago, Chicago, IL, USA
51. 12/07/2011  
*Progress in relativistic viscous hydrodynamics*  
Workshop on Thermal Photons and Dileptons  
Brookhaven National Laboratory, Upton, NY, USA
52. 11/30/2011  
*Analyzing the quark-gluon plasma with higher flow harmonics*  
Nuclear Theory Seminar  
University of Maryland, College Park, MD, USA
53. 10/26/2011  
*Flow at LHC from event-by-event hydrodynamics*  
2011 Fall Meeting of the APS Division of Nuclear Physics  
Michigan State University, East Lansing, MI, USA
54. 10/16-21/2011 *Hydrodynamics and Flow*  
Invited lectures at the 2011 H-QM Fall Lecture Week  
Helmholtz Research School - Quark Matter Studies  
Zell, Mosel, Germany
55. 10/11/2011  
*Monte-Carlo for hard probes in heavy ions*  
PHENIX collaboration meeting  
Brookhaven National Laboratory, Upton, NY, USA

56. 09/22/2011  
*Higher flow harmonics from event-by-event viscous hydrodynamics*  
 Nuclear Physics Seminar  
 Stony Brook University, Stony Brook, NY, USA
57. 09/02/2011  
*Higher harmonics from viscous hydrodynamics with fluctuating initial conditions*  
 International Symposium on Non-equilibrium Dynamics  
 Heraklion, Crete, Greece
58. 08/24/2011  
*3+1D viscous relativistic hydrodynamics*  
 Seminar  
 University of Jyväskylä, Jyväskylä, Finland
59. 08/11/2011  
*Monte-Carlo simulation of jets in heavy-ion collisions*  
 DPF 2011 - Meeting of the Division of Particles and Fields of the APS  
 Brown University, Providence, RI, USA
60. 06/16/2011  
*Jet Monte-Carlo simulations*  
 Lecture given at the JET summer school 2011  
 Duke University, Durham, NC, USA
61. 05/24/2011  
*Flow - Theory Perspective*  
 Quark Matter 2011 plenary talk  
 Annecy, France
62. 05/09/2011  
*Flow in heavy-ion collisions at RHIC and LHC  
 from event-by-event 3+1D viscous hydrodynamics*  
 Nuclear and Particle Theory Seminar  
 MIT, Cambridge, MA, USA
63. 04/28/2011  
*Event-by-event 3+1D viscous hydrodynamics for RHIC and LHC*  
 GHP2011 - The 4th Workshop of the APS Topical Group on Hadronic Physics  
 Anaheim, CA, USA
64. 03/24/2011  
*Anisotropic flow in event-by-event viscous hydrodynamics*  
 RIKEN Lunch Seminar  
 Brookhaven National Laboratory, Upton, NY, USA
65. 03/03/2011  
*Anisotropic flow and correlations from event-by-event viscous hydrodynamics*  
 Nuclear Physics Seminar  
 The Ohio State University, Columbus, OH, USA
66. 02/15/2011  
*Anisotropic flow in heavy-ion collisions  
 from event-by-event viscous hydrodynamics*  
 Triangle Nuclear Theory Colloquium  
 Duke University, Durham, NC, USA
67. 02/02/2011  
*Event-by-event Hydrodynamic Description of Anisotropic Flow and Correlations  
 at RHIC and LHC*  
 RIKEN workshop on  
 Initial State Fluctuations and Final-State Particle Correlations  
 Brookhaven National Laboratory, Upton, NY, USA

68. 11/17/2010  
*Understanding the hottest stuff on earth*  
Physics Colloquium  
University of Colorado, Boulder, CO, USA
69. 10/11/2010  
*Monte-Carlo Simulation of Heavy-Ion Collisions*  
Hard Probes 2010  
Eilat, Israel
70. 08/27/2010  
*Monte-Carlo Simulations for Heavy-Ion Collisions*  
Nuclear Theory and RIKEN Seminar  
Brookhaven National Laboratory, Upton, NY, USA
71. 08/13/2010  
*MARTINI: Monte-Carlo for Heavy-Ion Collisions*  
Workshop on Jets in p+p and Heavy-Ion Collisions  
Prague, Czech Republic
72. 07/08/2010  
*Monte-Carlo Simulations for the Hard Probes in Heavy-Ion Collisions*  
International Nuclear Physics Conference 2010  
University of British Columbia, Vancouver, BC, Canada
73. 06/18/2010  
*Jet evolution in a weakly coupled QGP*  
JET Collaboration Symposium  
Lawrence Berkeley National Laboratory, Berkeley, CA, USA
74. 06/09/2010  
*Monte-Carlo simulation of high-energy nucleus-nucleus collisions*  
2010 Canadian Association of Physicists (CAP) Congress  
University of Toronto, Toronto, Canada
75. 06/08/2010  
*Hadron-hadron correlations. A theory overview*  
RHIC/AGS users' meeting  
Brookhaven National Laboratory, Upton, NY, USA
76. 04/15/2010  
*Monte-Carlo simulation of high-energy nucleus-nucleus collisions*  
Kernphysikalisches Kolloquium  
Goethe University, Frankfurt, Germany
77. 12/17/2009  
*Monte-Carlo schemes of energy loss with specific example of MARTINI*  
Joint CATHIE and TECHQM workshop  
Brookhaven National Laboratory, Upton, NY, USA
78. 06/12/2009  
*Jet evolution in stable and unstable non-Abelian plasmas*  
Nuclear Theory and RIKEN Seminar  
Brookhaven National Laboratory, Upton, NY, USA
79. 06/06/2009  
*Jet evolution in heavy-ion collisions*  
Theory Canada 5  
Fredericton, NB, Canada
80. 04/03/2009  
*Jet energy loss and momentum broadening in Wong-Yang-Mills simulations*  
Quark Matter 2009  
Knoxville, TN, USA

81. 11/11/2008  
*Jet energy loss in stable and unstable non-Abelian plasmas*  
Triangle Nuclear Theory Colloquium  
Duke University, Durham, NC, USA
82. 09/16/2008  
*Jet energy loss in stable and unstable non-Abelian plasmas*  
Seminar in Hadronic Physics  
McGill University, Montreal, Canada
83. 03/13/2008  
*Jet propagation and QGP collective phenomena*  
72. Annual Meeting of the DPG, Darmstadt, Germany
84. 02/08/2008  
*QGP collective effects and jet transport*  
Quark Matter 2008, Jaipur, India
85. 09/13/2007  
*Simulations of QGP instabilities in A+A collisions*  
invited talk at the workshop on Heavy Ion Physics Perspectives  
Virtual Institute on Strongly Interacting Matter, Bad Liebenzell, Germany
86. 07/25/2007  
*CPIC - a cutoff free parton cascade*  
INT Special Seminar  
Institute for Nuclear Theory, University of Washington, Seattle, Washington, USA
87. 06/22/2007  
*Quantum transport with memory effects*  
Workshop on Electromagnetic probes of strongly interacting matter, ECT\*, Trento, Italy
88. 03/12/2007  
*Photon production from an anisotropic quark-gluon-plasma*  
71. Annual Meeting of the DPG, Giessen, Germany
89. 09/26/2006  
*QGP instabilities under the influence of collisions*  
and  
*Fermionic collective modes of an anisotropic QGP*  
INT Workshop on Non-Equilibrium Quark-Gluon Plasma  
Institute for Nuclear Theory, University of Washington, Seattle, Washington, USA
90. 05/11/2006  
*Non-equilibrium dilepton production in dropping mass scenarios*  
International Conference on Strong and Electroweak Matter  
Brookhaven National Laboratory, Upton, New York, USA
91. 03/24/2006  
*The effect of collisions on QCD plasma instabilities*  
70. Annual Meeting of the DPG, Munich, Germany
92. 03/24/2006  
*Dilepton yield from Brown-Rho scaled vector mesons including memory effects*  
70. Annual Meeting of the DPG, Munich, Germany
93. 09/26/2005  
*Disequilibrium dilepton production from hot hadronic matter*  
Nuclear Theory Seminar  
Lawrence Berkeley National Laboratory, Berkeley, USA

94. 06/09/2005  
*Dilepton production from hot hadronic matter in non-equilibrium*  
Workshop on Electromagnetic probes of hot and dense matter, ECT\*, Trento, Italy
95. 03/16/2005  
*Dilepton production from hot hadronic matter in non-equilibrium*  
XLIII International Winter Meeting on Nuclear Physics, Bormio, Italy
96. 03/08/2005  
*Dilepton production from hot hadronic matter in nonequilibrium*  
69. Annual Meeting of the DPG, Berlin, Germany
97. 01/03/2005  
*Dilepton production from hot hadronic matter in non-equilibrium*  
37. RNM Workshop, GSI - Darmstadt, Germany

*Further workshops und presentations*

1. presentation at the EMMI Workshop and XXVI Max Born Symposium  
July 9-11 2009  
Wroclaw, Poland
2. presentation at the workshop ETD-HIC  
Early Time Dynamics in Heavy Ion Collisions  
July 16-19 2007  
McGill University, Montreal, Canada
3. XXXVIII. Arbeitstreffen Kernphysik Schleching  
February 22 - March 1 2007  
Schleching, Germany
4. INT Workshop: From RHIC to LHC: Achievements and Opportunities  
September 25 - October 15 2006  
Institute for Nuclear Theory, University of Washington, Seattle, Washington, USA
5. presentation at the Interdisciplinary Workshop on  
Progress in Nonequilibrium Green's Functions III  
August 22-26 2005, University of Kiel, Germany
6. Workshop on In-Medium Hadron Physics  
November 11-13 2004  
Justus-Liebig-University, Giessen, Germany
7. Workshop of the Virtual Institute:  
Dense Hadronic Matter & QCD phase transition  
July 2-4 2004  
Physik-Zentrum Bad Honnef, Germany
8. IPP Summer University for Plasma Physics  
17-21 September 2001  
MPI for plasma physics, Garching, Germany